

**IN THE CLAIMS**

For the convenience of the Examiner, all pending claims of the present Application are presented below whether or not an amendment has been made. Please amend the claims as follows:

1. **(Currently Amended)** A method of automatically deploying program units to a cluster of networked servers, comprising:

assembling one or more program units for deploying to a cluster of one or more application servers;

retrieving type information related to the cluster of networked servers from a deployment server, the type information identifying a type of application server installed on one or more nodes to which to deploy the program units;

using a universal deployment tool to dynamically load an application server plugin to perform cluster deployment on the type of application server, **wherein the application server plugin:**

**is dynamically loadable by the universal deployment tool upon receiving a user identification of the cluster of one or more application servers;**

**corresponds to at least one of the application servers in the cluster of one or more application servers; and**

**encapsulates deployment configurations associated with the one or more program units, the deployment configurations corresponding to the at least one of the application servers;**

automatically, and without user input, using the dynamically loaded application server plugin to generate a script to use a specific utility of the application server for generation of deployment descriptors from the type information retrieved from the deployment server, the deployment descriptors suitable for the type of application server; and

deploying the one or more program units to the cluster of the one or more application servers using at least the deployment descriptor.

2. **(Previously Presented)** The method of claim 1, further comprising creating naming and directory interface binding files.

3. **(Previously Presented)** The method of claim 1, wherein the retrieving comprises automatically retrieving information related to the one or more application servers in the cluster.

4. **(Original)** The method of claim 3, further comprising:  
dynamically allowing a user to select from the one or more application servers.

5. **(Previously Presented)** The method of claim 1,  
wherein the retrieving comprises:  
automatically retrieving information related to one or more virtual hosts in the cluster.

6. **(Previously Presented)** The method of claim 5, further comprising:  
dynamically allowing a user to select from the one or more virtual hosts.

7. **(Cancelled)**

8. **(Original)** The method of claim 1, wherein the assembling further comprises providing a user interface to gather information from a user about the one or more program units being deployed.

9. **(Original)** The method of claim 1, wherein the cluster of networked servers includes at least an application server and one or more clones of the application server.

10. **(Original)** The method of claim 1, further including allowing re-deploying of already deployed one or more program units to the cluster.

11. **(Currently Amended)** A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform method steps of automatically deploying program units to a cluster of networked servers, comprising:

assembling one or more program units for deploying to a cluster of networked servers;

retrieving type information related to the cluster of networked servers from a deployment server, the type information identifying a type of application server installed on one or more nodes to which to deploy the program units;

using a universal deployment tool to dynamically load an application server plugin to perform cluster deployment on the type of application server, wherein the application server plug-in:

is dynamically loadable by the universal deployment tool upon receiving a user identification of the cluster of networked servers;

corresponds to at least one of the networked servers in the cluster of networked servers; and

encapsulates deployment configurations associated with the one or more program units, the deployment configurations corresponding to the at least one of the networked servers;

automatically, and without user input, using the dynamically loaded application server plugin to generate a script to use a specific utility of the application server for generation of deployment descriptors from the type information retrieved from the deployment server, the deployment descriptors suitable for the type of application server; and

deploying the one or more program units to the cluster using at least the deployment descriptor.

12. **(Previously Presented)** The program storage of claim 11, further comprising:

creating naming and directory interface bidding files.

13. **(Currently Amended)** A system automatically deploying program units to a cluster of networked servers, comprising:

an application server cluster comprising a set of a plurality of application servers, each application server running on a different host machine that comprises a processor; and

a network deployment server running on a deployment processor in communication with the application server cluster, the processor running the at least one network deployment server comprising:

data source management module operable to retrieve data source information from at least one data store, the data source information related to an application server to which to deploy one or more program units;

cluster management module operable to retrieve cluster information from the at least one data store, the cluster information related to the application server; and

container management module operable to:

retrieve container information from the at least one data store, the container information related to the application server **cluster**, the container information identifying a type of application server installed on one or more nodes; and

use a universal deployment tool to dynamically load an application server plugin to perform cluster deployment on the type of application server, **wherein the application server plugin:**

**is dynamically loadable by the universal deployment tool upon receiving a user identification of the application server cluster;**

**corresponds to at least one of the application servers in the application server cluster; and**

**encapsulates deployment configurations associated with the one or more program units, the deployment configurations corresponding to the at least one of the application servers;**

automatically, and without user input, use the dynamically loaded application server plugin to generate a script to use a specific utility of the application

server for generation of deployment descriptors from the information retrieved container information, the deployment descriptors suitable for the type of application server;

wherein the data source information, cluster information, container information, and deployment descriptors are used to automatically deploy the one or more program units to the plurality of application servers.

14. **(Original)** The system of claim 13, further including:

a user interface module to retrieve information from a user related to one or more user preferences for deploying the one or more program units.

15. **(Original)** The system of claim 14, wherein the user interface module is further operable to allow the user to change the retrieved data source information.

16. **(Original)** The system of claim 14, wherein the user interface module is further operable to allow the user to select a target cluster from the retrieved cluster information, to which to automatically deploy the one or more program units.

17. **(Previously Presented)** The method of claim 1, wherein the retrieving comprises:

automatically retrieving information related to one or more virtual hosts in the cluster.

18. **(Previously Presented)** The method of claim 17, further comprising:  
dynamically allowing a user to select from the one or more virtual hosts.

19. **(Cancelled)**

20. **(Cancelled)**

21. **(Previously Presented)** The method of claim 1, further comprising:  
after the automated generation of the deployment descriptors, receiving a user customization of the deployment descriptors; and

merging the user customization with the automatically generated deployment descriptors to update the automatically generated deployment descriptors according to the user customization.

22. **(Previously Presented)** The program storage of claim 11, further comprising:

after the automated generation of the deployment descriptors, receiving a user customization of the deployment descriptors; and

merging the user customization with the automatically generated deployment descriptors to update the automatically generated deployment descriptors according to the user customization.

23. **(Previously Presented)** The system of claim 13, wherein the container management module is further operable to:

after the automated generation of the deployment descriptors, receiving a user customization of the deployment descriptors; and

merging the user customization with the automatically generated deployment descriptors to update the automatically generated deployment descriptors according to the user customization.

24. (New) The system of claim 1, wherein:

the cluster of one or more application servers comprises a plurality of application servers;

at least one of the plurality of application servers comprises a new application server; and

using the universal deployment tool to dynamically load the application server plug-in to perform cluster deployment comprises:

installing a new application server plug-in for the new application server, the new application server plug-in encapsulating deployment configurations associated with the one or more program units, the deployment configurations corresponding to the new application server; and

dynamically loading the new application server plug-in.

25. (New) The program storage of claim 11, wherein:

the cluster of networked servers comprises a plurality of application servers;

at least one of the plurality of application servers comprises a new application server; and

using the universal deployment tool to dynamically load the application server plug-in to perform cluster deployment comprises:

installing a new application server plug-in for the new application server, the new application server plug-in encapsulating deployment configurations associated with the one or more program units, the deployment configurations corresponding to the new application server; and

dynamically loading the new application server plug-in.

26. (New) The system of claim 13, wherein:

at least one of the plurality of application servers comprises a new application server; and

the container management nodule is operable to use the universal deployment tool to dynamically load the application server plug-in to perform cluster deployment by:

installing a new application server plug-in for the new application server, the new application server plug-in encapsulating deployment configurations associated with the one or more program units, the deployment configurations corresponding to the new application server; and

dynamically loading the new application server plug-in.



27. (New) A method of automatically deploying program units to a cluster of networked servers, comprising:

- assembling one or more program units for deploying to a plurality of application servers, at least one of the plurality of application servers comprising an existing application server and at least one of the plurality of application servers comprising a new application server;

- retrieving type information related to the plurality of application servers from a deployment server, the type information identifying at least a type of the existing application server;

- using a universal deployment tool to dynamically load a first application server plugin to perform cluster deployment on the type of the existing application server, wherein the first application server plugin corresponds to the existing application server and encapsulates deployment configurations associated with the one or more program units and corresponding to the existing application server;

- installing a second application server plug-in to perform cluster deployment on the type of the new application server, wherein the second application server plugin corresponds to the new application server and encapsulates deployment configurations associated with the one or more program units and corresponding to the new application server;

- using the universal deployment tool to dynamically load the second application server plugin to perform cluster deployment on the type of the new application server;

- using the first and second application server plugins to deploy the one or more program units to the existing application server and the new application server.